



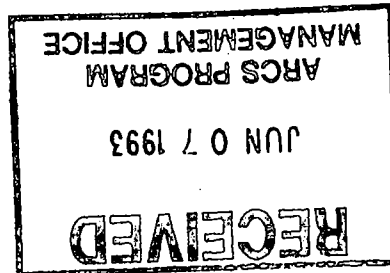
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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REPLY TO THE ATTENTION OF

EPA Region 5 Records Ctr.



356929



HSRL-6J

Friday, 4 June 1993

Tim Tedesco
375 AW/EM
701 Hanger Road
Scott Air Force Base, IL 62225-5035

Re: Review of the Installation Restoration Program's Second Draft Work Plan Stage II (WP) Remedial Investigation, Feasibility Study, Treatability Study and Second Draft Sampling & Analysis Plan (SAP) Remedial Investigation, Feasibility Study, Treatability Study for Scott Air Force Base, St. Clair County, Illinois.

Dear Mr. Tedesco:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act and Executive Order 12088, we have reviewed the above referenced documents for the Scott Air Force Base, St. Clair County, Illinois. We reviewed the document for compliance with the requirements of the National Contingency Plan (NCP), the format found in the United States Environmental Protection Agency (U.S.EPA) guidance: Guidance for Conducting Remedial Investigations and Feasibility Studies (RI/FS) under CERCLA (Interim Final, EPA540/G-89/004, October 1988), and the Region V Model Quality Assurance Project Plan (May 1991).

It is evident that much of the information contained within the Work Plan (WP) Stage II documents prepared by Law Environmental, Inc. (Law) has been taken directly from the Installation Restoration Program (IRP) Stage I Remedial Investigation/Feasibility Study April 1992 Report prepared by Environmental Resources Management, Inc. (ERM) and will not be commented on a second time. Only the Law's revisions, amendments, additional investigations and additional recommendations will be technically reviewed by the U.S. EPA. In general, however the WP appears to address the primary concerns raised in the review of the Stage I documents by ERM.

Scott-04015, 12

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Overall the Sampling and Analysis Plan (SAP) appears substantially complete. However, it is to be noted that since certain sections of the SAP are identical to sections presented in the WP, comments presented in the WP comments also apply to the SAP document.

Thank you for the opportunity to provide comments on this document. If you have any questions, please contact me: (312) 886-0850.

Sincerely,

Laura J. Ripley

Laura J. Ripley
Work Assignment Manager

Enclosure

cc: Brian Culnan, IEPA.
Ted Lietzke, WWES.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
COMMENTS**

**Work Plan Stage II (WP) Remedial Investigation/Feasibility Study
and Second Draft Sampling & Analysis Plan for Scott Air Force Base, Illinois**

GENERAL COMMENTS

- * A site-wide summary with a figure of the known hydrogeologic features and ground water flow directions would be very helpful.
- * In general, previous work has not adequately addressed the issue of Non-Aqueous Phase Liquids (NAPLs). Law's proposed work will better define these parameters, but their strategy does not appear consistent for all of the sites.
- * The utility of a Hydropunch will provide helpful real-time data during the investigations, but the contaminants to be analyzed have not been specified. Moreover, the collection of risk assessment quality data has not been established.
- * Law reported the presence of three aquifers on the Scott AFB, a shallow, an intermediate and a deep aquifer. Consistency in the referencing of these aquifers would be helpful to the reader. It is assumed that only the shallow aquifer is being sampled, yet, only once in the report, is this assumption substantiated. It should be made clear to the reader that the shallow aquifer is the only one being studied and any deep wells referenced in the report are located at the bottom of the shallow aquifer.
- * Downgradient wells installed in the intermediate and deep aquifers are recommended to determine whether they have been impacted by site activities.
- * In several instances, definition of relevant abbreviations including data qualifiers are omitted from tables. Any abbreviations or qualifiers used in the tables should be defined in the footer.
- * The figures that present the North Landfill Cell and South Landfill Cell of Site 1 in both the WP and SAP appear to be misconfigured.
- * The conceptual site model summary presented in Table 2-31 does not indicate how the background values were calculated and whether or not they are appropriate or adequate (with regard to soil type and number of samples collected). We presume this was taken from the SI Report. Please indicate if this is the case.
- * Table 2-32 presents a list of potential remedial alternatives for the Scott AFB site and Table 2-33 presents a list of potential federal ARARs for the Scott AFB site.

The information presented in these tables should be combined so that the potential ARARs associated with a particular remedial alternative are presented together. The revised table should be expanded to include a description of the potential remedial alternative which may be impacted by the ARAR as well as a brief description of the statutory requirements for the specific ARAR cited. For example, under the 40 CFR 264 citation, the table should be expanded to explain that removal of contaminated wastes from areas of contamination may require cleanup to levels established under RCRA closure requirements. The same format should be used for Table 2-34 so as to identify the potential State of Illinois ARARs associated with each remedial alternative.

- * In general, the tables and figures should reflect what is stated in the text. For instance, the Tables presenting Field Tasks for Remedial Investigation (Table 3-1 to Table 3-9 in the WP and Table 2-1 to Table 2-9 in the SAP) appear to be inconsistent.
- * A Table of Acronyms with their associated meanings would be very helpful.

SECOND DRAFT WORK PLAN STAGE II

Section 2.0 ENVIRONMENTAL SETTING

1. **Page 2-23, 3rd complete paragraph, last sentence (Section 2.1.4.2)-** The ERM report (1992) is referenced in this sentence. It is noted that "the previous investigation found that base water quality is generally within the levels required for "General Use" waters, although minor variances from the permitted concentration were noted at several locations." No mention is made with regard to what the variances were nor how the variances were handled. Additional discussion at this point is needed to indicate whether these variances need further investigation.
2. **Page 2-29, third paragraph, last sentence (Section 2.1.8.1)-** The last sentence alludes to a historical benthic survey. Who completed this survey, when was it performed, and where was it performed (e.g., up river to the Scott AFB in Silver Creek)?
3. **Page 2-35, Table 2-5, History of IRP Sites -** In the description of the waste disposed of in Site 1 (landfill), no mention is made regarding disposal of waste "sludge" as described previously in the report. This information should be added.
4. **Page 2-79, 1st incomplete paragraph -** The hydraulic gradient across Site 3 had been estimated by Law as being 0.005. Has the water level data from Well 3-1 been included in this estimate, in spite of the qualification

mentioned earlier in the paragraph? If so, during which measuring event did the estimated gradient exist?

5. **Page 2-79, 1st complete paragraph** - Please identify the monitoring wells at Site 3 in which slug tests were conducted. Which measuring event was the horizontal flow rate based on?
6. **Page 2-81, Figure 2-26, Ground Water Elevation Contour Map - Site 3** - The ground water divide illustrated on this figure should parallel the site's proposed equi-potential lines of ground water flow. In addition, this ground water divide appears to disagree with the divide indicated on Figure 2-16, page 2-48. Please clarify.
7. **Page 2-102, Figure 2-33. Existing Soil Boring and Monitoring Well Locations - Site 6** - It is not clear whether the arrow depicting the approximate location of underground tanks is simply indicating the location of the tanks or if it is also designating ground water flow direction. Please clarify.
8. **Page 2-111, 1st complete paragraph** - The first sentence of this paragraph indicates that the sludge lagoon was formerly located southeast of the POL tanks, but Figure 2-36 on page 2-112 indicates that the site boundaries for the sludge lagoon are southwest of the POL tanks. Please clarify.
9. **Page 2-126, Figure 2-39. Conceptual Site Model Base-wide** - The flow chart indicates that a spill will only directly impact soil. The free product releases associated with an above ground storage tank could directly impact surface water.
10. **Page 2-129, Table 2-31, Conceptual Site Model Summary** - It is not clear whether the exposed receptors/routes of exposure are for the primary or the secondary migration pathway of air volatilization. Please clarify and indicate the exposed receptors/routes of exposure for both pathways.
11. **Page 2-150, first incomplete paragraph, last sentence (Section 2.3.1)** - It is agreed that the quantity of the background data available for analysis is limited and the recommendation that additional samples be collected and analyzed for the purpose of establishing background is warranted. In the next paragraph, last sentence, the report points out to the reader that only the contaminants present at concentrations exceeding the inadequately established background were included in Table 2-31. Until appropriate background can be established for the site, all of the detected contaminants should be included in Table 2-31.

12. **Page 2-150, 1st complete paragraph** - The last sentence of this paragraph indicates that Law's CSM lists only those contaminants detected above background levels. With regard to VOCs, many of the LNAPLs may not have been detected by previous studies because none of the 32 monitoring wells included in this investigation appear to intercept the water table. We suggest that these LNAPLs may exist on sites that have not yet detected such contaminants. Such omissions should be considered during the development of this first component of the CSM, that is identification of site contaminants.
13. **Page 2-151, second bullet, (Section 2.3.2)** - The quantity of fuel spilled at this site is reported to be 20,000 gallons on page 2-91 and 13,000 gallons on page 2-151. Page 2-91 reports that approximately 7,000 gallons of the fuel was recovered, yet 13,000 gallons of the fuel could not be accounted for. Page 2-151 reports that of the 13,000 gallons accidentally released, 107,000 gallons were recovered. What is the correct number of gallons released?
14. **Page 2-152, second paragraph, (Section 2.3.3.1)** - In the initial ground water discussion, three ground water zones are identified - - surficial, intermediate and deep which are present in the alluvial deposits, glacial deposits and bedrock. For consistency throughout the remainder of the report, the ground water should be referenced in the same manner.
15. **Page 2-152, third paragraph, (Section 2.3.3.1)** - The third sentence of this paragraph suggests that vertical movement of contaminants from surficial to deep aquifers may be restricted OR it may exist. It is not apparent what part of the investigation, if any, is addressing the concern of vertical movement of contaminants.
16. **Page 2-153, second paragraph, (Section 2.3.3.2)** - Due to the nature of possible contamination present in some areas of the Scott AFB (e.g., pesticides) and the possibility of contamination due to agricultural activities surrounding the base (i.e., pesticide use in agriculture), surface water and sediment samples collected from upstream should be analyzed for contaminants of concern.
17. **Page 2-154, first sentence, (Section 2.3.3.2)** - Human populations also potentially may be exposed to contaminants via ingestion of fish caught from a contaminated surface water body. It should be noted if significant recreational fishing is expected in these creeks.
18. **Page 2-154, 2nd complete paragraph (Section 2.3.3.4)** - In the third sentence, the report states that VOC's were not detected in the surface

soils, yet in the next sentence the report states that it is reasonable to assume that volatilization may occur from these same soils. It may be better to replace the third and fourth sentences with the following:

"The previous investigation performed by ERM did not detect VOC's in any of the surface soil samples collected. Nevertheless, due to the limited information available regarding the presence of VOC's in surface, and the types of contamination known to be present at different sites on the Scott AFB, it is possible that volatilization of VOC's may occur."

19. **Page 2-155, second complete paragraph, (Section 2.3.4.1)-** It is not clear from earlier parts of the report (pg. 2-17) what ground water in the vicinity (within a one-mile radius) of the base is being used as a source of potable water or other domestic or agricultural uses. Currently, the base and surrounding domestic water needs are met from a municipal water supply, though it is unclear where the municipal water supply gets its water.
20. **Pages 2-159 through 2-162, Table 2-32. Preliminary Remedial Action Alternative -** The preliminary remedial action objectives lists the cumulative cancer risk objective to be 1×10^{-4} . The U.S. EPA considers a risk range of 1×10^{-4} to 1×10^{-6} (NCP 300.430) when evaluating whether potential carcinogenic risks are acceptable at a site. Selection of a number within this range as the final remedial action objective would be made by risk managers and should not be made at this point in the site investigation. This section should be revised to say the cumulative cancer risk range of 1×10^{-4} to 1×10^{-6} is considered as the preliminary remedial action objective at this site.
21. **Page 2-164, Table 2-33. Federal ARARs, Division of Solid and Hazardous Waste -**
 - 1) In addition to listing ARARs applicable to land disposal of hazardous wastes, ARARs, including 40 CFR 241 and 257, which apply to land disposal of non-hazardous solid wastes should be included in the table under this heading.
 - 2) 49 CFR 100-199 should also be cited under this section as a potential ARAR under Standards Applicable to Transporters of Hazardous Wastes.
 - 3) The Toxic Substances Control Act (40 CFR 761.60) may be a potential ARAR if polychlorinated biphenyl impacted soils are detected at the site.

22. **Page 2-164, Table 2-33. Federal ARARs, Division of Water** - Under the Stormwater Discharge Requirements, Parts 123, 124 of 40 CFR and Section 402(P) of the Clean Water Act should also be included as potential ARARs if excavation activities at the site will result in potential storm water runoff.
23. **Page 2-164, Table 2-33. Federal ARARs, Division of Air** - Under the National Ambient Air Quality Standards, 40 CFR 51 should also be included as an ARAR since this rule outlines requirements for preparation of management plans to control air emissions (e.g., fugitive dust emissions) during remedial activities. In addition, 40 CFR 52, which covers the approval and promulgation of State Implementation Plans for control of air emissions during remedial activities, should also be included as a potential ARAR.
24. **Page 2-166, Table 2-34. State of Illinois ARARs, Illinois Hazardous Waste Management Regulations** - The Illinois Standards and Specifications for Soil and Sediment Control Act of 1987 should be included as a potential state ARAR.
25. **Page 2-167, 4th complete paragraph, (Section 2.5.1.2)**- In the second sentence, ground water is referenced. It is not clear which aquifer is being discussed, or whether all of the aquifers are classified as Class I aquifers.
26. **Page 2-174, Table 2-36. Identification of Data Needs, Site 1, Landfill 1, 1st Data Need** - The wording of the first data need could be misconstrued: "to define the extent of downgradient ground water contamination " and "to delineate the contaminant plume" are similar statements.

Will the intermediate and deep aquifers be sampled and analyzed to confirm that they are not currently impacted?
27. **Page 2-174, Table 2-36. Identification of Data Needs, Site 1, Landfill 1, 2nd Data Need** - In the earlier text it is mentioned that the surficial and intermediate aquifers may be linked. Does the work plan address the nature of the possible communication between aquifers?
28. **Page 2-174, Table 2-36. Identification of Data Needs, Site 3, Fire Protection Training Area No. 2, 1st Data Need** - Will the intermediate and deep aquifers be sampled and analyzed to confirm that they are not currently impacted?

29. **Page 2-174, Table 2-36. Identification of Data Needs, Site 3, FPTA #2, 1st Data Need** - Why must the hydraulic conductivity parameters be determined by Law? (ERM calculated these values in earlier studies.) If the parameters truly need to be determined a second time, why not also determine these parameters for Site 1 and 2?
30. **Page 2-175, Table 2-36. Identification of Data Needs, Site 5, Facility 8550 Spill Site, Data Need 1** - Will the intermediate and deep aquifers be sampled and analyzed to confirm that they are not currently impacted?
31. **Page 2-175, Table 2-36. Identification of Data Needs, Site 6, 4th Data Need** - Remedial alternatives are to be evaluated for Site 6. Why not evaluate remedial alternatives for the other sites as well?
32. **Page 2-175, Table 2-36. Identification of Data Needs, Site 7, 1st Data Need** - Why are NAPL's only explicitly listed as a data need for Site 7?
33. **Page 2-177, 1st complete paragraph** - Law indicates that the landfill depth is approximately 30 to 40 feet. However, ERM's 1992 report indicates only a 10-foot fill depth. Which previous investigation indicates a 30 to 40-foot fill depth?
34. **Page 2-178, third and fourth bullet, (Section 2.6.1)** - The Work Plan seems to have focused on the volatile site contaminants. The investigation of at least the landfill, sediment and surface water should also include heavy metals which may be significant in terms of dermal exposure and ingestion.
35. **Page 2-179, paragraphs (i) and (ii), (Section 2.6.1)** - The aquifer being investigated needs to be stated since three aquifers are present at the site.
36. **Page 2-180, 2nd complete paragraph** - Why was a three-month period chosen to continuously monitor ground water levels? Which three months are proposed for the monitoring program? After becoming familiar with the fluctuating ground water levels during the three-month period, will ground water level measures proposed for these 5 wells continue daily, weekly, monthly until a full year has elapsed? Are additional measures proposed following significant rainfall events?
37. **Page 2-181, last paragraph** - A soil gas survey is "intrusive" if proposed within the boundaries of the landfill. Is this also considered "potentially dangerous?" Additionally, we believe that investigations of the landfill itself may be necessary to fill in the data gaps left by inadequate previous investigations, historical documentation and the gathering of information via personal interviews.

38. **Page 2-183, 1st complete paragraph** - It is true that five years have passed since the surface water and sediment of Mosquito Creek have been sampled, but the suggested site changes appear intuitive in this paragraph. Please include quantified changes to better rationalize the proposed sampling.
39. **Page 2-183, first full paragraph, (Section 2.6.1)** - Surface water quality data needs are discussed in this paragraph. Due to the agricultural uses of the surrounding lands, background samples of sediment should be analyzed for pesticides. Analytical results could then be used to calculate background concentrations of these compounds.
40. **Page 2-184, 1st paragraph** - Although only recreational exposure was found to be unacceptable by the ERM 1992 report, is it not possible to determine the exposure limits for military activities as well? When is the analysis of 20 additional soil samples to be taken (before or after the site is regraded)? Are these additional samples necessary?
41. **Page 2-184/185, (Section 2.6.2)** - Although VOCs are recognized as possible subsurface soil and ground water contaminants, adequate characterization of LNAPLs has not been completed. We recommend that additional monitoring wells be constructed to intercept the water table.
42. **Page 2-187, first incomplete paragraph, last sentence, (Section 2.6.3)** - The installation of a monitoring well above the water table is recommended for the identification of LNAPL-type contaminants. Please explain why a monitoring well above the water table, rather than straddling the top of the water table, is recommended.
43. **Page 2-187, 1st paragraph** - Law has suggested that metals contamination of Site 3 ground water may be due to waste water treatment plant sludges. If this is a possibility, then we recommend that the sludges, themselves, be sampled for metals in addition to installing a monitoring well between the site and the plant.
44. **Page 2-188, second paragraph, fifth sentence, (Section 2.6.4)** - Please state why data from the existing wells is considered unreliable.
45. **Page 2-189, 2nd and 3rd complete paragraph and Page 2-190, 1st incomplete paragraph and second full paragraph, third and fourth sentence (Section 2.6.4)** - Based on these paragraphs the U.S. EPA understands that a total of seven new monitoring wells are proposed by Law. The U.S. EPA concurs with the rationale for the first three, but insufficient rationale is provided for the four proposed on page 2-190.

The report should state in which aquifer the "one deep well" will be placed.

46. **Page 2-190, 1st incomplete paragraph, (Section 2.6.4)** - It is not clear whether surface soil samples will be collected from this site, and if not, why.
47. **Page 2-191, first complete paragraph, (Section 2.6.5)** - Based on the ERM 1992 report, "poorly sorted sand, silt and clay" exist in the uppermost shallow soils (depth of approximately ten feet). Predominantly clay soils underlie these shallow soils. Moreover, the water table apparently exists above these clay soils. Based on this ERM information, free product may exist in the vicinity of Site 5. However, no water table wells appear to exist; so, adequate assessment of such free product is not yet possible.
48. **Page 2-194, 1st incomplete paragraph, second to last sentence, (Section 2.6.6)** - What criteria will be used to determine when the site is remediated? Will health based clean-up remediation goals be established for BTEX at this site?
49. **Page 2-196, 1st & 2nd complete paragraphs** - Alternative measures are possible to control the site's background volatile emissions, for example, temporary closing of the BX gas station. Regardless of the background levels, air monitoring of volatile emission for health and safety purposes should be taken during an investigation of Site 6.
50. **Page 2-196, second paragraph, (Section 2.6.6)** - If the soils are not heavily impacted, then the argument presented here may be appropriate. However, heavily impacted soils could increase the risk substantially to anyone who is present on the site. Granted, actual air sampling would not be appropriate due to the ongoing activities at the station, but it would be possible to model the emissions from the subsurface soils to the above air space without any interference from contributions from gasoline distribution activities.
51. **Page 2-199, last bullet** - The installation of plastic sheeting in the crawl space is not an adequate "engineering control." Puncturing of the plastic is probable during maintenance in the crawl space; so, the institution of ERM's recommended health and safety measures may be necessary.

Section 3.0 REMEDIAL INVESTIGATION/FEASIBILITY STUDY TASKS

52. **Pages 3-2 through 3-3, General Comment** - PID readings will indicate VOC and some SVOC contamination presence, but will not indicate the

presence of elevated metals. If a sample contains visible contamination but has a low (or no) PID reading, will it be sampled?

Also, will all collected samples be submitted for analysis? This is not always indicated on the tables.

53. **Page 3-2, Table 3-1. Field Tasks for Remedial Investigation - Site 1, 1st Field Task** - A soil gas survey is recommended by Law for Site 1, but a figure illustrating the location and distance between each survey point has not been provided. Please provide such a figure for technical review.
54. **Page 3-2, Table 3-1. Field Tasks for Remedial Investigation - Site 1, 2nd and 3rd Field Tasks** - The U.S. EPA recommends ten-foot screens for the water table wells and five-foot screens for the deep wells set above bedrock. The U.S. EPA is concerned about the use of a 30-foot well screen for the recovery well. Since the nature and extent of contamination is not well defined at greater depths, the use of a 30-foot well screen may connect contaminated zones with non-contaminated zones.
55. **Page 3-2, Table 3-1. Field Tasks for Remedial Investigation - Site 1, 7th Rationale** - Reword Rationale 7 to read: "evaluate health risk posed by surface soil exposure during army training activities."
56. **Page 3-2, Table 3-1. Field Tasks for Remedial Investigation - Site 1, 8th Rationale** - Insert "and sediment " after "surface water".
57. **Page 3-5, Table 3-3, Field Tasks for Remedial Investigation - Site 3, 4th Field Task** - Although two soil borings are proposed, only one soil boring is illustrated in the SAP on Figure 2-3 (page 2-17). Please clarify.
58. **Page 3-8, Table 3-5. Field Tasks for Remedial Investigation - Site 5, 1st Field Task and 1st Rationale** - Although 30 Hydropunch locations are recommended by Law to aid in the location of monitoring wells and to delineate the extent of contamination, no proposed Hydropunch locations appear to exist in the source area on Figure 2-5, page 2-19 of SAP. Such an omission limits delineation of the vertical extent of contamination. Please explain.
59. **Page 3-8, Table 3-5. Field Tasks for Remedial Investigation - Site 5, 8th Field Task and 8th Rationale** -
 - 1) Although 10 soil samples have been recommended by Law to determine the magnitude and extent of surface soil contamination, no sample locations appear to be proposed in the source areas adjacent to the tank, see Figure 2-6, page 2-20 of SAP. Please explain.

- 2) Surface soil samples are collected and analyzed to determine dermal and dust inhalation exposure.
60. **Page 3-9, Table 3-6. Field Tasks for Remedial Investigation - Site 6, 4th Field Task** - If the water table exists approximately 6 feet bls at Site 6 and Law intends to extend a screen to approximately 35 feet bls, then a 30-foot recovery well screen is being recommended. The U.S. EPA is concerned about the use of a 30-foot well screen for the recovery well. Since this well is proposed to be installed within the contaminant plume, care must be taken to not draw contaminants downward into zones that are not currently impacted.
 61. **Page 3-11, Table 3-7. Field Tasks for Remedial Investigation - Site 7, 3rd Field Task** - Although surface water and sediment samples are proposed by Law as a field task, such sampling and analysis was not considered a data need, see Table 2-36 on page 2-175. Please clarify.
 62. **Page 3-12, Table 3-8. Field Tasks for Remedial Investigation - Site 8 - The U.S. EPA recommends that Health and Safety controls, originally proposed by ERM, also be implemented for Site 8.**
 63. **Page 3-13, Table 3-9. Field Tasks for Remedial Investigation, Background Location, Field Tasks 1, 3, and 6** - Please provide approximate location depths for the proposed well installations and surface soil sampling.
 64. **Page 3-13, Table 3-9. Field Tasks for Remedial Investigation - Background Location, 2nd and 6th Rational** - Please include in the SAP a figure depicting the background locations. Are these sampling points of similar soil type?
 65. **Page 3-14 through 3-21, Table 3-10. Sampling Plan Detail - Soil and Sediment** - The addition of a column entitled "Sample Depth", where appropriate, is recommended.

Could explosives or other ordnance-related chemicals be present at any of the sites? A discussion of whether soils should be analyzed for explosive constituents is warranted?
 66. **Page 3-16, Table 3-10. Sampling Plan Detail - Soil and Sediment** - Why are the samples collected from FPTA No. 1 not being analyzed for semi-volatile organic compounds? SVOC's may be present. Also, did any of the fuel or other flammables used in the fire exercises contain lead?

67. **Page 3-17 through 3-19, Table 3-10. Sampling Plan Detail - Soil and Sediment, Facility 1965** - Why are no TPH analyses proposed for the soil and sediment samples? Why are semivolatile organic analyses only proposed for soil samples collected from MW6?
68. **Page 3-21, Table 3-10, General Comment** - A discussion of whether soils should be analyzed for explosive constituents (particularly at the landfill) is warranted.
69. **Pages 3-27 and 3-28, Tables 3-11B and 3-11C Sampling Plan Detail - Aqueous** - There is no apparent difference between these two tables.
70. **Page 3-31, 1st complete paragraph** - Although the expected depth for the survey is indicated as four feet, page 2-24 of the SAP indicates a sampling depth of two to ten feet, please clarify. Where will the survey points be located? Please include these locations on a figure.
71. **Page 3-31, 2nd complete paragraph** - How is the "deep part of the aquifer" determined? Which aquifer? Will Hydropunch samples be collected at periodic intervals (i.e. 5-foot intervals)? How will the Hydropunch investigation avoid drawing down contamination. Why install a recovery well where no contaminants are found? Pumping of such a well may draw contamination down into zones not previously contaminated.
72. **Page 3-31, last incomplete paragraph** - What are the proposed depths for the 12 shallow and 5 deep monitoring wells?
73. **Page 3-32, 1st incomplete paragraph** - Shallow well, MW1-23, has been proposed to identify constituents within the shallow part of the surficial aquifer, but no such well has been proposed for the deeper part of the aquifer. Please explain.
74. **Page 3-32, last paragraph** - The U.S. EPA recommends that 10-foot well screens be used to intercept the water table. If the hollow-stem auger method is proposed for nearly all well installations, how will contamination of ground water beneath contaminant sources be avoided?
75. **Page 3-34, 1st incomplete paragraph, (Section 3.2.1.1)** - Specify whether the soil samples collected from "the zone of highest PID reading" and the "deepest part of the boring" will be collected from the saturated or unsaturated zone.
76. **Page 3-36, 1st incomplete paragraph** - Indirect methods are referenced as indicating whether or not ground water is in contact with fill material. This

question has already been determined by ERM, see MW1-7 on Figure 4-2 of page 4-16. However, the U.S. EPA recommends that direct methods be used to document the depth of fill material within the landfill.

77. **Page 3-37, 1st complete paragraph** - Figure 3-1 shows only one monitoring well within 250 feet of the recovery well, this does not constitute a network of monitoring wells capable of providing drawdown data during a pump test of the recovery well. What will be the distance between the recovery well and MW1-15?
78. **Page 3-38, 1st complete paragraph** - The proposed pump test data evaluation will assume confined and unconfined aquifer conditions. Can we safely make this assumption when previous work at the site has suggest semi-confining or leaky confined conditions?
79. **Page 3-38, 2nd complete paragraph** - What conditions/parameters will be used by Law to determine invalid pump test data?
80. **Page 3-40, last paragraph** - The proposed shallow downgradient monitoring well will not provide information regarding the possible presence of DNAPLs and heavy metals in the ground water. Has installation of a deeper well been considered?
81. **Page 3-42, Figure 3-4. Proposed Sampling Locations - Site 3 & Page 2-17 of the SAP, Figure 2-3. Proposed Sampling Locations - Site 3** - The proposed soil boring SB3-3 should be renamed SB3-4 on both figures.
82. **Page 3-48, 1st complete paragraph** - The Bouwer and Rice method will be utilized by Law to reduce the aquifer test data. This method is appropriate for an unconfined aquifer. Why are aquifer tests proposed for Site 4 while pump tests have been proposed for other sites?
83. **Page 3-50, Figure 3-6. Proposed Hydropunch Sampling Locations - Site 5** - Why are no Hydropunch sampling points located within the bermed area for the two tanks?
84. **Page 3-51, Figure 3-7. Proposed Sampling Locations - Site 5** - MW5-6 is proposed by Law to be located adjacent to existing well, MW5-3. Please explain this proposal.
85. **Page 3-53, 1st complete paragraph** - Why are no surface soil samples proposed to be collected within the tank berm area?

86. **Page 3-55, last paragraph** - A recovery well should only be installed after the vertical extent of contamination has been determined. Premature placement of this well may lead to ineffective removal of contaminants.
87. **Page 3-57, 2nd complete paragraph** - Continuous pumping at a rate of 50 gpm is unlikely. Section 2.1.3.2 and Table 2-2 suggest that probable pump rates are between 0 and 10 gpm.
88. **Page 3-57, 3rd complete paragraph** - Theis and Neuman calculations apply to different aquifer conditions and should not be used as a "check" on each other.
89. **Page 3-58, 3rd complete paragraph, second to the last sentence (Section 3.2.1.7)**- What are the approximate depths of the 'shallow' and 'deep' aquifer? Why are no additional monitoring well installations proposed? In order to conceptualize this site, a figure of this site would be useful.
90. **Page 3-58, fourth complete paragraph, (Section 3.2.1.8)**- In order to better conceptualize this site, a figure of this site would be most beneficial.
91. **Page 3-60, first paragraph, (Section 3.2.1.9)**- Are the proposed wells located upgradient to the Scott AFB? Which aquifers will the wells be screened? A map indicating the probable locations of the monitoring wells and soil samples to be used for background would be beneficial.

Please emphasize that the background soil samples, both sub-surface and surface, need to be collected from the same soil type as the foreground samples. The U.S. EPA recommends that U.S. EPA Risk Assessment Guidance for Superfund (EPA/540/1-89/002) regarding selection and number of adequate background samples be followed.

92. **Page 3-61, 1st complete paragraph, second sentence (Section 3.2.1.9)**- Delete "normal" from sentence and replace with unimpacted or background.
93. **Page 3-70, 8th bullet, (Section 3.5.1)** - Insert "detection" before "limits" to clarify the meaning of the task.
94. **Page 3-73, second paragraph, (Section 3.6)** - U.S. EPA's Health Effects Assessment Summary Tables (HEAST) should be listed as a reference source for RfD's and SF's.
95. **Page 3-74, first incomplete paragraph, (Section 3.6)** - The work plan states that if ARARs are available for all identified contaminants, then a

quantitative risk assessment will not be performed. This approach, however, will likely not account for the potential cumulative health effects from exposure to multiple chemicals and, therefore may not be appropriate.

In addition, any quantitative risk assessment should be conducted not only according to U.S. EPA Risk Assessment Guidance for Superfund (EPA/540/1-89/002), but also according to other relevant risk assessment guidance, and supplemental guidance, documents published since 1989.

96. **Page 3-75, whole page (Section 3.7 - Ecological Risk Assessment)** - Guidance for conducting this evaluation should also reference the Region V Scope of Work for Ecological Assessment (April 30, 1991).

The sampling plan, as indicated in previous sections, does not include the collection of plants, fish or animals for aquatic toxicity tests or for the analyses of chemical uptake. The ecological risk assessment should include as part of its conclusions, recommendations on whether any such sampling or testing is necessary based on the results of this assessment.

SECOND DRAFT SAMPLING AND ANALYSIS PLAN (SAP)

GENERAL COMMENTS

- * The Sampling and Analysis should be compared with the Work Plan for technical consistency.
- * The organization of the QAPP does not follow Region V guidance. The Region V Model QAPP is attached for reference.
- * The QAPP and Field Sampling Plan should be prepared using the document control format consisting of the following placed in the upper right-hand corner of each document page:
 - 1) Project Name
 - 2) Section Number
 - 3) Revision Number
 - 4) Date
 - 5) Page Number
- * This submittal is considered the first draft, therefore the next submittal will be called the "first revision".
- * Provide a title/signature page with provision for approval signatures. *See the Superfund Model QAPP.*

- * Revise the title of Section 1.7 from **"Field Equipment Calibration Procedures"** to **"Calibration Procedures and Frequency"**.
- * Provide a project schedule which has the dates anticipated for start, milestone, and completion of the project and monitoring activities. A milestones table or a bar chart consisting of project task and time lines is appropriate. *See the Superfund Model QAPP.*

Section 1.0 QUALITY ASSURANCE PROJECT PLAN (QAPP)

1. **Page 1-8, Section 1.2.1.5, Facility 3550 Spill Site** - The quantity of fuel spilled at this site has differing values. *See Work Plan Section 2.0 Comment 13.*
2. **Page 1-19, Section 1.2.3, Data Quality Objectives** - Please discuss the Data Quality Objective (DQO) level for analyzing groundwater samples by field gas chromatograph (GC).
3. **Page 1-20, Table 1-1. Summary of Analytical Levels Appropriate to Data Uses** - Revise the following:
 - 1) Under DQO II, explain the field activity "hydropunch".
 - 2) Include the analysis of groundwater samples by field GC.
4. **Section 1.2.3, Data Quality Objectives** - Provide a table listing matrices, parameters, and their frequency of collection. The table must include all field measurements as well. *See the attached example summary table.*
5. **Section 1.3, Project Organization and Responsibility** - Include the following:
 - 1) Identify the party responsible for data assessment.
 - 2) Identify Target Environmental Services as the laboratory responsible for soil gas analysis and provide their address.
6. **Section 1.4, Quality Assurance Objectives for Measurement Data** - Add a discussion on the how the data will be used and the frequency for ambient condition blank sample which is described in the Field Sampling Plan (FSP), Section 2.2.4.
7. **Page 1-35, Section 1.4.1.1, Accuracy** - The frequency of collection, preparation procedures, and how the data will be used for trip blank and equipment rinseate blank samples must clearly be specified as the following:
 - 1) Trip blanks samples are used to assess the potential for contamination of samples due to contaminant migration during

sample shipment and storage. One trip blank consisting of distilled deionized ultra pure water will be included along with each cooler of aqueous VOA samples. Trip blank samples are prepared prior to the sampling event in the actual sample containers and are kept with the investigative samples throughout the sampling event. They are then packaged for shipment with the other samples and sent for analysis. At no time after their preparation are the sample containers opened before they reach the laboratory.

- 2) Equipment rinseate blank samples are analyzed to check for procedural contamination at the site which may cause samples contamination. One equipment rinseate blank sample is collected per group of 10 or fewer investigative samples and they are only required for aqueous samples. Equipment rinseate blank samples are obtained by running analyte-free deionized water through sample collection equipment (bailer, pump, auger, etc.) after decontamination.

8. Page 1-35, Section 1.4.1.2, Precision - Include the following specific information on field duplicate and matrix spike/matrix spike duplicate (MS/MSD) samples:

- 1) One field duplicate samples is collected per group of 10 or fewer investigative samples.
- 2) The discussion provided on MS/MSDs is incorrect. One MS/MSD sample will be collected for every 20 or fewer investigative samples and are designated as such in the field. MS/MSD samples are designated/ collected for organic analyses only. MS/MSD samples are investigative samples. Soil MS/MSD samples require no extra volume for VOCs and extractable organics. However, aqueous MS/MSD samples must be collected at triple the volume for VOCs and double the volume for Semi-VOCs and Pest/PCBs.

9. Page 1-40, Table 1-3, Sample Containers, Amounts and Preservations - Revise and include the following:

- 1) VOCs sediment and surface soil samples will not be collected in brass rings. Specify the containers for these samples.
- 2) Include the requirement for soil gas, groundwater VOCs by field GC.

10. Page 1-43, Section 1.6.1, Field Operations - Provide the chain-of-custody procedures for the on-site laboratory and Target Environmental Services.

11. **Page 1-47, Section 1.6.2.3, Sample Custody Records** - Include a description of the final evidence file. The description must list the file contents and indicate the file custodian. The evidence file must be under custody in a locked, secured area.
12. **Page 1-51, Section 1.7, Field Equipment Calibration Procedures** - This section must describe the calibration procedures and their frequency for laboratory instruments. If the SOPs describe this information, it is acceptable to reference the SOPs. Many of the calibration procedure are in the analytical method and Analytical Procedure Section of the QAPP, these must be referenced.
13. **Page 1-54, Table 1.5, Analytical Test Methods** - Include TCLP extraction and analyses, groundwater by field GC for VOCs, and soil gas analysis.
14. **Page 1-66, Section 1.8.3.1, Organics by Gas Chromatography with Second Column Confirmation** - Provide the SOPs for Total Petroleum Hydrocarbons (LUFT CAL DHS), for HPLC analysis of explosives, the analysis of groundwater by field GC for VOCs, and the analysis of TCLP extracts.

For Pesticides/PCBs analysis, the following information should also be provided:

- 1) Table listing retention times.
 - 2) Specify the concentrations of the five calibration standards.
 - 3) Specify the concentration of the mid-level standard used for the initial calibration verification.
 - 4) Provide a detail description of clean-up procedures.
15. **Page 1-68, Section 1.8.3.2, Volatile and Semi-Volatile Organics by Gas Chromatography/Mass Spectrometry (GC/MS)** - Separate VOCs and Semi-VOCs analysis.

For VOC Analysis, provide the following information:

- 1) Specify how the sample will be introduced into the GC, by purge-and-trap or direct injection.
- 2) Provide a table listing retention times.
- 3) Specify the concentrations of the five calibration standards.
- 4) Specify the concentration of the mid-level standard used for the initial calibration verification.

For Semi-VOCs Analysis, include the following information:

- 1) Specify the concentrations of the five calibration standards.

- 2) Specify the concentration of the mid-level standard used for the initial calibration verification.
 - 3) Provide a detail description of clean-up procedures.
16. **Page 1-76, Section 1.8.3.3, Metals by Graphite Furnace Atomic Adsorption** - Specify the concentrations of the four calibration standards.
 17. **Page 1-77, Section 1.8.3.4, Metals by Inductively Coupled Plasma** - Specify the concentrations of the four calibration standards.
 18. **Page 1-78, Section 1.8.3.6, Colorimetric Analysis** - Specify the concentrations of the five calibration standards and the concentration of the calibration verification standard.
 19. **Page 1-78, Section 1.8.3.7, Cold-Vapor Atomic Absorption** - Specify the concentration of the calibration standards and the concentration of the calibration verification standard.
 20. **Page 1-82, Section 1.9.2, Data Reduction** - All possible data reduction procedures that will be used for this project should be listed in this section. It is acceptable to reference the analytical methods.
 21. **Page 1-87, Section 1.9.4, Data Reporting** - This section is incomplete. The following information should also be included:
 - 1) Case narrative.
 - 2) Calibration (initial/continuing) summary and raw data.
 - 3) Tuning data.
 - 4) Chromatograms and mass spectra.
 - 5) ICP and AA outputs.
 - 6) Interelement correction data.
 - 7) QC summary.
 22. **Page 1-95, Section 1.10, Organics by GC, Pesticide/PCB Analysis** - Specify the acceptance criteria for the QC check sample.

Section 2.0 FIELD SAMPLING PLAN (FSP)

23. **Page 2-9, Table 2-6. Field Tasks for Remedial Investigation - Site 6, 6th Field Task** - What is gsl?
24. **Page 2-12, Table 2-8. Field Tasks for Remedial Investigation - Site 8, 1st Field Task** - Covering the surface soils in the crawl space with plastic sheeting is not a remedial investigation activity. Since there is presently a building over the crawl space, downward leaching is not a concern. If

mercury vapor emissions were to occur, the plastic sheeting would not reduce that potential. Rather, the vapors would be directed and discharged along the edges of the plastic sheet where people are more likely to be present. In summary, this proposed activity accomplishes nothing in the way of remedial investigation, or exposure reduction. In fact, the people who would install the plastic sheeting are the likely candidates for exposure.

25. **Page 2-14, Figure 2-1a. Proposed Monitoring Well Locations - Site 1** - North Landfill Cell and South Landfill Cell are shown east and west from one another. Either the cells are misnamed or the north arrow on the north arrow is pointed the wrong direction.
26. **Page 2-15, Figure 2-1b. Proposed Surface Soil, Surface Water & Sediment Sampling Locations - Site 1** - There are no surface soil samples or soil borings proposed near the south, southwest, or southeast boundaries. The number of surface soil samples and soil borings appears adequate, but the proposed locations would largely duplicate earlier work.
27. **Page 2-20 to Page 2-21, Figure. Site 7 - Sludge Weathering Lagoon** - There is not a figure for this site. This figure should be included.
28. **Page 2-37, 1st incomplete paragraph** - It is discussed that the well will be surged during installation of the sand filter pack. This is a good idea for well development, however, it is unclear whether ground water from the well will be used in the surging (i.e. withdrawing and re-pumping into the well) or if outside water will be introduced. Introduction of outside water should be avoided since that would reduce the chance of obtaining a representative ground water sample.
29. **Page 2-47, 2nd paragraph and Page 2-14, Figure 2-1a. Proposed Monitoring Well Locations** - If the primary purpose of well MW1-15R is for a pump test, it may be advisable to locate the well upgradient from the landfill to allow for the possibility that the 100,000 gallons of water to be pumped would be clean enough so that the expense of special disposal methods would not be required. If well MW1-15R is also intended as a recovery well in the future, then its exact location should be determined based on the analytical results from the surrounding wells.
30. **Page 2-50, Section 2.2.1, Procedures for Collection of Samples** - Provide the procedures for preparing sample containers.
31. **Page 2-54, Section 2.2.1.1, Ground-Water Sampling** - Provide detail procedures for filtering groundwater metal samples. Additionally specify

that the samples will be field filtered immediately, not longer than 15 minutes; prior to the addition of preservatives.

32. **Pages 2-65 through 2-72, Table 2-15, Analytical Methods** - Include the following analyses where applicable:
 - 1) TCLP analysis (VOCs, Semi-VOCs, metals (except Hg), and mercury).
 - 2) Soil gas for VOCS.
 - 3) Groundwater field GC analysis for VOCs.
33. **Page 2-81, Section 2.2.2.2, Sample Identification** - Include a sample identification prefix for MS/MSD samples.
34. **Page 2-87, Section 2.2.4, QC Samples** - Correct the frequency for collecting/preparing replicate, field duplicate, and trip blank samples to correspond with *Sampling and Analysis Plan Section 1.0 Comment 6*.
35. **Pages 2-89 through 2-106, Section 2.3. Field Measurements** - Calibration procedures of the various field instruments have been described, yet no field calibration forms have been presented.
36. **Appendix E, Technical Specifications Statement for Soil Gas Surveys** - This section is incomplete. The odd number pages are missing.

Detailed procedures for the sampling and analysis of soil gas samples should be provided. The analysis procedure should also describe how the cartridges are prepared. *See the attached guidelines for preparing analytical Standard Operating Procedures (SOPs).*